



**Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)**

M.Sc. (Second Semester - Regular) Examinations, May – 2026

24MBIPC12005- Molecular Diagnostics

(Biotechnology)

Time: 3 hrs

Maximum: 60 Marks

(The figures in the right hand margin indicate marks)

PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

- | | CO # | Blooms
Level |
|---|------|-----------------|
| a. What are the gene mutations? | CO1 | K1 |
| b. Name any two florescent dyes used in molecular test. | CO2 | K1 |
| c. Name the regulatory board especially for INDIA. | CO4 | K1 |
| d. What are biomarkers. | CO2 | K1 |
| e. What are the four types of Chromosome structure mutations. | CO3 | K2 |

PART – B

(10 x 5 = 50 Marks)

Answer **ALL** the questions

- | | Marks | CO # | Blooms
Level |
|--|-------|------|-----------------|
| 2. a. Discuss in detail about SAGE techniques. | 05 | CO1 | K2 |
| b. Evaluate the different types of gene mutation in chromosomes that causes diseases. | 05 | CO1 | K4 |
| (OR) | | | |
| c. Demonstrate the working and principle of RFLP. | 05 | CO1 | K3 |
| d. Analyse the working and principle of multiplex PCR. | 05 | CO1 | K4 |
| 3.a. Metabolite profile for biomarker detection the body fluids/tissues in various metabolic disorders by making using NMR technological platforms | 05 | CO2 | K3 |
| b. Describe in clear the procedure of PCR and also explain in clear the role of each and chemical used for in PCR. | 05 | CO2 | K2 |
| (OR) | | | |
| c. Direct detection and identification of pathogenic-organisms that are slow growing or currently lacking a system of in vitro cultivation as well as genotypic markers of microbial resistance to specific antibiotics. | 05 | CO2 | K3 |
| d. Evaluate the biomarkers for lung cancer. | 05 | CO2 | K4 |
| 4.a. Explain about RT-PCR and its applications. | 05 | CO3 | K2 |
| b. Describe about Fragile X Syndrome. | 05 | CO3 | K2 |
| (OR) | | | |
| c. Summarize about Von-Hippel Lindau disease, recent acquisition in growing number of familial cancer syndromes. | 05 | CO3 | K2 |
| d. Explain about biomarker testing for detection of colon cancer. | 05 | CO3 | K2 |
| 5.a. Describe about types of cancer-causing alterations revealed by next-generation sequencing of clinical isolates. | 05 | CO4 | K2 |
| b. Justify about Target therapy in cancer patients. | 05 | CO4 | K5 |
| (OR) | | | |
| c. Demonstrate in brief about predictive biomarkers for personalized onco-therapy of human breast cancer disease. | 05 | CO4 | K3 |
| d. Describe about the working of SSCP | 05 | CO4 | K2 |
| 6.a. Analyses the working procedure of DGGE in molecular diagnosis. | 05 | CO1 | K4 |
| b. Discusses about FISH | 05 | CO2 | K2 |
| (OR) | | | |
| c. Discuss in detail about Regulations and approved testing | 05 | CO3 | K2 |
| d. Discuss about the bioinformatics data acquisition & analysis | 05 | CO3 | K4 |

--- End of Paper ---